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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/828,163	04/09/2001	Ichirou Miyagawa	Q63607	6555

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EXAMINER

PHAM, HAI CHI

ART UNIT	PAPER NUMBER
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2861

DATE MAILED: 03/29/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/828,163	MIYAGAWA, ICHIROU	
	Examiner	Art Unit	
	Hai C. Pham	2861	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 January 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4, 6-9, 11, 12 and 14-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-4 and 6-8 is/are allowed.
- 6) ☒ Claim(s) 9, 11, 12 and 14-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f):
- a) ☒ All b) ☐ Some c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

2. Claims 9, 11-12, 14-16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 9:

- The following limitations “amount-of-light adjusting means” and “amount-of-light correcting means” recited at lines 10 and 14, respectively, appear to be confused in that the two light amount adjusting means are recited as separate entities wherein the first means adjusts the light amount of the light beams based on the light amount detected by the amount-of-light detecting means while the second means adjusts the light amount of the same light beams at the temperature detected by the temperature detecting means. Fig. 6 of the Disclosure shows a single amount-of-light adjusting means, namely the amount-of-light control circuit (80), which adjusts the light amount of the light beams based on both the light amount detected by the photosensor and the temperature detected by the temperature detecting means.

Claim 11:

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- “said amount-of-light correcting means” at line 16 lacks antecedent basis.

Moreover, it is unknown whether the amount-of-light correcting means is the same one being used in the step of adjusting the light sources as recited at line 10.

Claim 12:

- “said amount-of-light correcting means” at line 14 lacks antecedent basis.

Moreover, it is unknown whether the amount-of-light correcting means is the same one being used in the step of adjusting the light sources as recited at line 12.

Claim 15:

- “said amount-of-light correcting means” and “said temperature” at lines 18-20 lack antecedent basis. Moreover, it is unknown whether the amount-of-light correcting means is the same one being used in the step of adjusting the light sources as recited at line 11.
- Claim 15 is also rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential elements, such omission amounting to a gap between the elements. See MPEP § 2172.01. The omitted elements are: at least a temperature detecting means is needed to detect the instant temperature of the light source such that the light amount adjusting means can adjust the light amount of the light source at the detected temperature.

Claims 14 and 16 are dependent form claims 12 and 15 above, and are therefore indefinite.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 9, 11-12, 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Creutzmann et al. (U.S. 4,780,731) in view of Ushirozawa (U.S. 6,452,953) and Murayama et al. (U.S. 6,130,700).

Creutzmann et al. discloses an exposure recording apparatus (Fig. 1) comprising amount-of-light detecting means (photoelement FE) movable into and out of a beam path of the light beams (the photoelement FE being moved along the main scanning direction to and being inserted in and out of the optical path so as to face the respective LED elements), for detecting amounts of light of the light beams emitted from said light sources (the sensor being used to measure the light quantity of each of the LEDs), a moving mechanism (electric motor M) for moving said amount-of-light detecting means movable into and out of said beam path, and amount-of-light adjusting means for adjusting the amounts of light of the light beams emitted from said light sources in order to equalize the amounts of light of the light beams detected by said amount-of-light detecting means (col. 2, lines 20-28), a temperature sensor (TF) provided on the carrier

supporting the LED elements so as to detect and correct the light amount based on the detected operating temperature of the LEDs.

Creutzmann et al. fails to teach the temperature sensor sensing the temperature of each individual LED element and the temperature regulating means to control the temperature of each of the light sources.

Ushirozawa discloses a light source unit comprising a plurality of laser diodes (2), wherein each laser diode has its own temperature sensor (thermistor 4) for detecting the particular temperature, and its own temperature regulating means (Peltier device 3) to precisely control the temperature of the LD in order to stabilize the wavelength of the signal light at a predetermined value.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to provide a temperature detecting means and a temperature adjusting means to each of the light emitting elements of Creutzmann et al. as taught by Ushirozawa. The motivation for doing so would have been to be able accurately control both the temperature and the light amount emitted from each individual light emitting element so as to stabilize the wavelength of the signal light at a predetermined value as suggested by Ushirozawa at col. 1, lines 7-36.

Creutzmann et al. also fails to teach the temperature versus amount of light table.

Murayama et al. discloses an LED printer and a light amount correction means for adjusting the light amount of the light emitting elements to account for environmental conditions at the time the invention was made of the exposure, the

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printer includes a temperature sensor (28) for detecting the temperature at the light emitting elements and the light amount correcting means adjusts the light amount of the light emitting elements at the detected temperature based on the memory EE-PROM (27), which stores the a set of values Ds correspond to the current to be supplied to the light emitting elements versus temperature (col. 5, lines 20-34) (col. 10, lines 30-49).

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to incorporate a look up table into the device of Creutzmann et al. representing the relation between the temperature and the light amount as taught by Murayama et al. the motivation for doing so would have been to readily and dynamically adjusting the light amount of the light emitting elements with the change of the temperature.

With regard to claim 14, Creutzmann et al. further teaches controlling only those light sources, which correspond to regions where said amount-of-light detecting means are inserted, to emit the light beams (col. 4, lines 35-55).

5. Claims 15-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Creutzmann et al. in view of Murayama et al. and Takesue et al. (U.S. 4,837,787).

Creutzmann et al. discloses all the basic limitations of the claimed invention (please refer to paragraph 4 above for the rejection of related claimed limitations) except for the temperature versus amount of light table.

Murayama et al. discloses an LED printer and a light amount correction means for adjusting the light amount of the light emitting elements to account for environmental conditions at the time the invention was made of the exposure, the printer includes a temperature sensor (28) for detecting the temperature at the light emitting elements and the light amount correcting means adjusts the light amount of the light emitting elements at the detected temperature based on the memory EE-PROM (27), which stores the a set of values D_s correspond to the current to be supplied to the light emitting elements versus temperature (col. 5, lines 20-34) (col. 10, lines 30-49).

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to incorporate a look up table into the device of Creutzmann et al. representing the relation between the temperature and the light amount as taught by Murayama et al. the motivation for doing so would have been to readily and dynamically adjusting the light amount of the light emitting elements with the change of the temperature.

Creutzmann et al. also fails to teach adjusting the amount-of-light detecting means in order to equalize the detected amounts of light.

Takesue et al. discloses a light quantity monitor circuit including a photosensor (50) for detecting the light amount emitted from the laser light source (31), wherein the relationship between the laser light quantity and the detected current outputted by the photosensor is kept in a predetermined proportion relation by adjusting a variable resistor (e.g., resistor 86, Fig. 16) (col. 13, lines 1-10) (col. 14, lines 13-59).

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It would have been obvious at the time the invention was made to a person having ordinary skill in the art to provide the adjusting means for maintaining a proportion relationship between the laser light quantity and the detected current outputted by the photosensor in the device of Creutzmann et al. as taught by Takesue et al. The motivation for doing so would have been to enable the calibration of the light amount monitor circuit to ensure a corrected light amount being detected.

With regard to claim 16, Creutzmann et al. further teaches controlling only those light sources, which correspond to regions where said amount-of-light detecting means are inserted, to emit the light beams (col. 4, lines 35-55).

Allowable Subject Matter

6. Claims 1-4 and 6-8 are allowed.

Pertinent Prior Art

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Orlicki et al. (U.S. 5,825,399) discloses a data-dependent thermal compensation for an LED print head, wherein the light amount of each of the light emitting elements is adjusted based on a temperature versus light amount look up table.

Response to Arguments

8. Applicant's arguments with respect to claims 9, 11-12 and 14-16 have been considered but are moot in view of the new grounds of rejection.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hai C. Pham whose telephone number is (571) 272-2260. The examiner can normally be reached on M-F 8:30AM - 5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen D. Meier can be reached on (571) 272-2149. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



HAI PHAM
PRIMARY EXAMINER
March 23, 2006